

Geospace Missions for space weather and the next scientific challenges

James Spann, United States, NASA Marshall Space Flight Center

Currently there is an active international flotilla of spacecraft that continuously observe and measure the dynamic space environment that surrounds our planet. These spacecraft have remote sensors for photons and particles, and in situ instruments for plasmas, fields and particles. They provide the data input to guide, motivate, and validate predictive space weather models used by decision makers and for a myriad of scientific investigations. This talk will briefly survey the current Geospace missions relevant to space weather, what they observe, and why. This talk will conclude with the description of two most significant scientific challenges that must be met in order to advance our understanding and prediction of space weather, and its impacts to society. They are the genesis and evolution of ionospheric variability and the interplanetary magnetic field. Concepts of possible solutions for these two challenges will be discussed.